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De vluchtige olie van mentha piperita L. gedurende de ontwikkeling van de plant

Lemli, Joseph Albert Julia Melchior

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SUMMARY

After a short description of the plant, the culture and the chemical composition of peppermint oil, a method is suggested for the determination of the total number of glandular hairs on the leaf.

A new colorimetric determination of menthone and menthol, using 2,4-dinitrophenylhydrazine is elaborated.

Further are described a method for the determination of menthofuran, the determination of essential oil in air and the chromatography of terpenes.

From our investigation it appears that the total amount of glandular hairs on the leaf is already determined on the young leaf. The glandular hairs are only partly filled and the essential oil is then secreted in the glandular hairs until they have reached their maximal filling, after which the percentage of oil decreases.

By making evaluations of the absolute quantities of menthol and menthone in leaves of different heights of insertion during the growth of the plant, it was stated that only menthone is formed in very young leaves and afterwards only menthol is secreted. The menthone present is slowly transformed into menthol and this transformation also takes place during the withering.

The menthol is partly esterified during the whole vegetative cycle. Menthofuran is one of the first substances, formed in the young parts of the plant: the young leaves, the flowers and the stolons contain a high percentage of menthofuran.

The oil content increases until the plant reaches the bud-forming stage, remains at this level for two or three weeks and decreases after the flowering-time. From this moment an evaporation of the essential oil could be stated.

Finally cultivating experiments were carried out in order to determine the best conditions for a peppermint culture in the Netherlands.